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ABSTRACT

The brochure illustrates the program design for industrial arts education in New York State and briefly describes the early secondary and high school levels and the basic and technology series. The instructional content on the primary level emphasizes orientation to the nature of work and is divided into five major time blocks according to each grade level (K-4): work environment, service, manufacturing, communications, and power. The intermediate level (5-6) stresses exploration with tools, examining construction in the fifth grade and transportation in the sixth grade. The early secondary level (7-8) examines the utilization of materials and forces with grade seven covering ceramics, woods, drawing, and plastics and grade eight covering metals, graphic arts, electricity, and power mechanics. The secondary level, focusing on experiences in industrial technology, is divided into two series of electives: the basic series for the majority of students and the technology series for the more able students. The basic series includes ceramics, electricity, drawing, graphic arts, metals, power mechanics, plastics, and woods. The technology series deals with graphics technology, production technology, and power technology. (JB)

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A PROGRAM DESIGN FOR INDUSTRIAL ARTS EDUCATION IN NEW YORK STATE 1973

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PURPOSE - PREPARATION FOR PRODUCTIVE CITIZENSHIP

GOAL - PROVIDE PERSONAL ADAPTABILITY TO CHANGING TECHNOLOGY

MAY 2 0 1975

The University of the State of New York/THE STATE EDUCATION DEPARTMENT
Bureau of Industrial Arts/Albany, New York 12210

CE 004 895

PRIMARY LEVEL

Orientation to the Nature of Work

(correlated activities)

GRADE	
K	WORK ENVIRONMENT
1	SERVICE
2	MANUFACTURING
3	COMMUNICATIONS
4	POWER

INTERMEDIATE LEVEL

Exploration With Tools

(45 class periods)

5	CONSTRUCTION
6	TRANSPORTATION

EARLY SECONDARY LEVEL

Utilization of Materials and Forces

7*	CERAMICS DRAWING WOODS PLASTICS
8*	METALS GRAPHIC ARTS ELECTRICITY POWER MECHANICS

INDUSTRIAL ARTS

Industrial Arts Education develops an understanding of our industrial society and an awareness of its changing technology.

The importance of technology in an industrial society highlights the function of industrial arts in the school curriculum. The present and future need is for human adaptability to a changing technology. To fulfill this need industrial arts includes a broad instructional pattern with a focus upon the goal of *Technological Adaptability*.

A well developed, balanced program for the implementation of industrial arts should have these characteristics:

- A breadth of program to promote maximum technological adaptability
- A climate that encourages innovation and experimentation
- Instructional media for the efficient and effective presentation of lesson content
- Administrative, supervisory, and guidance services necessary for the selection, assignment, and evaluation of instruction
- Staff and facilities for implementation of activity-related instruction at the elementary, early secondary, and secondary levels
- Sufficient time allocations for effective instruction and student involvement at all levels

Early Secondary Level

The range of instruction in industrial arts at the early secondary level consists of a series of instructional experiences grouped to provide efficient programing and efficient arrangement of facilities. Instructional content is planned to remain a constant regardless of the school size or organization.

Industrial arts at the early secondary level represents a body of common knowledge, basic skills, attitudes, and understandings in a context of tool and material manipulation. It encompasses basic, activity-related instruction which should be available to every student in New York State.

Instructional content is divided into two major time blocks of instruction for grades 7 and 8. This outline establishes a framework for minimum time allocations to assure coverage of essential learnings.

Interrelation of activities is necessary, and every effort should be made to limit compartmentalizing instruction. A minimum time allocation is 5 periods per week for one semester in grade 7, and 5 periods per week for one semester in grade 8.

Many school districts maintain a 3-year industrial arts junior high school program in grades 7, 8, and 9. In these schools a comprehensive offering should be available at all three grade levels, with a range of activities and learnings encompassing ceramics, drawing, electricity, graphic arts, metals, plastics, power mechanics, and woods.

In systems employing a middle school pattern with grade 9 as part of the upper secondary program, the grade 9 industrial arts offering is part of the unit electives. Consequently, there is an accompanying change in emphasis and depth of content.

High School Level

Industrial arts courses in high schools extend the educational, guidance, and exploratory activities introduced at the early secondary level. Industrial arts is a home-school offering which serves the educational needs of students who are pursuing a program of general studies. The courses are designed to be offered on a single period basis to be in alinement with total school programing and scheduling. Industrial arts offers particular potential for modular scheduling, extended laboratory periods, modular units for demonstration time, and group or team teaching approaches.

A State high school diploma with a major sequence in industrial arts can be earned. This diploma requires the successful completion of any combination of three approved units. The chart at the beginning of this section shows the courses that may be offered for sequence purposes in a dual track system.

All courses may be offered on a freely elective basis without prerequisites to provide for maximum flexibility in scheduling. It is recommended that the study of a materials or forces area be limited to a maximum of one unit of credit. If a student has a committed interest to a particular area that would go beyond a unit course in industrial arts, his attention should be directed to an occupational program to fulfill his individual needs.

Basic Series

The *BASIC SERIES* of electives establishes a general sequence for most students. These courses allow considerable latitude and adjustment to meet varying abilities. A student's program of electives may be selected from this group.

Ceramics -
Industrial aspects of ceramics: extrusions, refractories, construction materials, mold construction, jiggering, pressing, abrasives, firing, and testing

Drawing -
Application of basic drawing techniques: representation, projections, interpretation, mechanical principles, dimensions, assemblies, and production problems

Electricity -
Fundamentals of circuitry: power sources and utilization, knowledge of principles, assembly and construction of electrical components, communication devices, motors, and controls

Graphic Arts -
Industrial printing processes: offset reproduction, screen process, photography, design and layout, letterpress printing, relief printing, publication processes

Metals -
Experiences in the metalworking processes: casting, forging, machine operations, plane development, welding; and the understanding of the processes and products of industry

Plastics -
Performance and study of processes involving: molding and forming, laminating, coating, adhesives, foams, testing, materials chemistry, and production

Power Mechanics -
Engine assembly, adjustment and repair, operation and testing, maintenance practices, development, and transmission of power

Woods -
Experiences involving: machine tool application, form building, construction techniques, household articles, testing of materials and products, and the processes of the industry

Technology Series

The *TECHNOLOGY SERIES* is designed to provide courses that will challenge the aptitude and interests of the more able students. This series is identified to enable districts to develop offerings representing innovative instructional practices and content. It is suggested that these courses be designed through the cooperative effort of the local school district and the State Education Department.

Graphic Technology -
Design, drawing, production improvement; reproduction methods; descriptive mathematics; planning and preparation of reports, charts, and graphs; publications; interrelationship of graphics and communications media

Power Technology -
Energy sources; production and utilization; fluid power; internal combustion; jet and rocket power; electronics; efficiency studies and tests; instrumentation

Production Technology -
Research and development; materials testing; fabrication and utilization; production methods; industrial organization; product design; prototypes; measurement and computation

SECONDARY LEVEL
Experiences in Industrial Technology

9

12

BASIC SERIES

CERAMICS
- *Ceramic Products
- *Structural Ceramics

ELECTRICITY
- *Electricity
- *Electronics

DRAWING
- *Development Drawing
- *Production Drawing

GRAPHIC ARTS
- *Photographics
- *Photo-Offset

METALS
- *Bench Metals
- *Production Metals

POWER MECHANICS
- *Small Engines
- *Vehicle Power

PLASTICS
- *Plastic Products
- *Plastic Processes

WOODS
- *Wood Products
- *Structures

TECHNOLOGY SERIES

GRAPHICS TECHNOLOGY
- *Publications
- *Engineering Drawing

PRODUCTION TECHNOLOGY
- *Construction
- *Manufacturing

POWER TECHNOLOGY
- *Transportation
- *Aerospace

* = ONE SEMESTER (90 CLASS PERIODS) NO PRE-REQUISITES, NO SEQUENCES

ELEMENTS OF TECHNOLOGY